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ABSTRACT

Designed for use in a 2-day workshop, this handbook explains the advantages of using measurable objectives in career education and includes techniques for writing the objectives. One day (6 hours) should be devoted to the handbook, and a second to writing work sessions. Arranged in outline format, the color-coded handbook incorporates sections on: (1) What Are Measurable Objectives? (2) Why Write Student Performance Objectives? (3) Why Write Program Management Objectives? (4) What Are the Components of a Measurable Objective? and (5) What Are Some Techniques Useful In Writing Measurable Objectives? Included in the appendixes are techniques for job competency identification and procedures for objectives writing. This bulletin was prepared by a Dean of Career Education and an Associate Dean of Curriculum Development at Joliet Junior College, Illinois, and assistance in designing and conducting such a workshop is available from the authors or the Division of Vocational and Technical Education, Illinois. (JS)

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Workshop Handbook:

WRITING MEASURABLE OBJECTIVES FOR CAREER EDUCATION

State of Illinois
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FOREWARD

Several publications and sources of information exist regarding the development and utilization of measurable objectives for education. The problems with these publications is that (1) they do not all use common terminology, i.e., behavioral objectives, measurable objectives, student objectives, (2) each publication does not contain sufficient practical instruction for preparing objectives for career education programs and courses, and (3) no publication could be found which was addressed for use in a workshop setting. To meet these needs, the Professional and Curriculum Development Unit of the Division of Vocational and Technical Education contracted to have such a publication prepared.

This bulletin was prepared by Joseph A. Borgen, Dean of Career Education, and Dwight E. Davis, Associate Dean of Curriculum Development of Joliet Junior College, Joliet, Illinois. Development involved the use of several sources and publications listed in the bibliography. Refinement of the bulletin involved the entire DVTE staff.

It is our hope that this bulletin will make a contribution to further development and utilization of measurable objectives for Career Education in Illinois. Suggestions for its improvement will be appreciated.

Sherwood Dees, Director
Division of Vocational and
Technical Education

INTRODUCTION:

The handbook has been designed to help explain the advantages of using measurable objectives in career education, and techniques useful in writing measurable objectives.

The handbook has been designed for use in a two day (12 hour) workshop with 6 hours on this handbook and 6 hours of work sessions on writing measurable objectives.

For assistance in designing and conducting such a workshop, contact the authors or The Division of Vocational and Technical Education.

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WHAT ARE MEASURABLE OBJECTIVES?

Measurable objectives related to planning and evaluation of quality vocational education programs can be divided into two major categories:

ONE: STUDENT PERFORMANCE OBJECTIVES

Statements describing what the student (learner) will do following successful completion of instruction.

Work pictures describing student performance when he has successfully completed a learning sequence.

Word images describing visible, observable student performance or products of student performance that will be displayed by successful learners.

TWO: PROGRAM* MANAGEMENT OBJECTIVES

Statements describing program and multiprogram level targets related to specific quantitative indicators such as staff utilization, facility utilization, student attrition, student placements, unit cost, etc.

Statements describing management intents of planning for change and problem solving.

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*The term PROGRAM is used in its generic and general sense, and may encompass the overall instructional plan of an institution, the occupational instruction component, a series of specific courses, or a combination thereof.

WHY WRITE STUDENT PERFORMANCE OBJECTIVES?

WHY WRITE STUDENT PERFORMANCE OBJECTIVES?

1. Student performance objectives can clarify and communicate specifically what outcome is expected for:
    - learners,
    - employers,
    - administrators,
    - educators,
    - anyone.

Which of these objectives best tell a student what is expected?

OBJECTIVE A: The student will gain a working understanding of automotive brake malfunctions.

OBJECTIVE B: Upon completion of the program, a student will be able to diagnose automotive brake malfunctions and make the required repairs within flat rate time, plus 10% with only the use of repair order directions.

After reading Objective A, the student would have a general vague idea of what is expected: but in Objective B, the student would know what he should be able to do under given conditions and within specified time limits. Well written objectives can clarify expected outcomes for students.

2. Student performance objectives can help to select and organize learning activities.

What learning activities would be planned to achieve each of the following objectives?

OBJECTIVE A: Develop knowledges, skills, favorable attitudes, and appreciation toward occupations in and related to food preparation, taking into account the needs of individuals in addition to the manpower needs of the nation as a whole.

OBJECTIVE B: Upon course completion and given specific nutritional requirements for individual family members, the student will be able to prepare a two week family menu that satisfies their nutritional requirements.

Learning or classroom activities that could be designed to achieve Objective A could vary significantly among different teachers who would have different interpretations of the objective.

Conversely, the learning activities to achieve Objective B would focus on planning for family nutrition which at the end of the course can be evaluated.

Student performance objectives written in measurable terms can help to select and organize learning activities.

3. Student performance objectives enable more accurate assessment of learner achievement.

How would you know when the following objectives have been achieved?

OBJECTIVE A: Upon completion of the program all students, given a description of an institutional food service with 20 identified employees, will be able to design an organizational chart and write job descriptions for all employees that would be consistent with national restaurant association standards.

OBJECTIVE B: The objective of the program is to teach an understanding of the hospitality industry and its methods of doing business.

Objective A will have been achieved by a student when he can prepare an organizational chart and write job descriptions that are consistent with N.R.A. standards.

The accomplishment of Objective B would have to be the opinion of the teacher. What might be acceptable to one teacher may not be acceptable to another.

Student performance objectives written in measurable terms enable more accurate assessment of learner achievement.

4. Student performance objectives promote specific identification of required job competencies which students should learn.

Which of these objectives relate to specific job competencies?

OBJECTIVE A: Upon completion of the program with the use of references, the student will be able to write a phased step by step program for the establishment and maintenance of four golf course turf grasses. The program would comply with accepted horticulture research.

OBJECTIVE B: To teach the fundamentals of turf grass management.

To write Objective A would require advice and information from persons directly involved in the horticulture industry.

Conversely, anyone could write Objective B without advice from any knowledgeable horticulturist.

Writing measurable student performance objectives can stimulate a closer relationship with business and industry via cooperative identification of job competencies.

5. Student performance objectives form the basis for making instructional decisions with emphasis on what happens to learners.

A SUGGESTED MODEL*

WRITE STUDENT PERFORMANCE OBJECTIVES	How should students, perform following successful completion of the unit, course, program?
PRE–ASSESS STUDENT PERFORMANCE IN TERMS OF OBJECTIVES	How well can students perform as described in objectives? (Usually this is done at the beginning and may indicate the objectives should be revised–set up or down).
SELECT LEARNING ACTIVITIES TO ACCOMPLISH OBJECTIVES	What learning activities will promote student performance described in objectives?
EVALUATE STUDENT PERFORMANCE AGAINST OBJECTIVES	Can student perform as described in the objectives?

*Popham & Baker, Establishing Instructional Goals.

WHY WRITE STUDENT PERFORMANCE OBJECTIVES?

Student Performance Objectives Can:

1. Clarify and communicate expected outcomes for learners, employers, administrators, evaluators, anyone.
2. Help select and organize appropriate learning activities.
3. Enable more accurate assessment of learner achievement.
4. Promote identification of job competencies.
5. Form the basis for systematic instruction.

WHY WRITE PROGRAM MANAGEMENT OBJECTIVES?

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1. Program management objectives can serve as an excellent planning vehicle.

Which of these objectives would facilitate better planning?

OBJECTIVE A: To develop new vocational offerings to serve the needs of the community.

OBJECTIVE B: To identify four new vocational program offerings appropriate for disadvantaged students for inclusion in the next fiscal year's budget.

Although objective A may have a good intent, it is not specific enough to give much direction regarding program planning priorities. On the other hand, objective B gives targeted direction to a segment of program planning (identify programs) that by budget time can be measured.

Program management objectives written in measurable terms can serve as an excellent planning vehicle.

2. Program management objectives define expected outcomes and therefore can foster efficient use of personnel energies.

Which of the following objectives would help to make staff assignments for the next semester?

OBJECTIVE A: On September 10, 1973 the first year agricultural enrollment will be increased 20 students over the 1972 enrollment.

OBJECTIVE B: To train students with salable skills to meet the needs of employers.

In order to achieve Objective A, staff time would probably be assigned to recruitment activities. Conversely, Objective B would not help a local administrator give specific staff assignments or later evaluating accomplishments for expended staff energies.

Program management objectives written in measurable terms can foster efficient use of personnel energies.

3. Program management objectives provide a framework for making budget decisions.

Which of the following objectives would clarify budget priorities?

OBJECTIVE A: During the fall semester three-day long workshops on the systems approach to instruction will be conducted for the career education staff.

OBJECTIVE B: To provide staff improvement activities designed to enhance the quality of career education.

A local administrator making recommendations for budget allocations would, under Objective A, designate dollars for three-day long workshops; but under Objective B would probably not be able to defend specific dollars for the vague non-measurable objective.

Program management objectives written in measurable terms can provide a framework for making budget decisions.

4. Program management objectives can help to demonstrate progress and establish a basis for evaluation.

Which of these objectives, if achieved, could be evaluated to show progress?

OBJECTIVE A:	During the 1972-73 school year the attrition rate for the LPN program will be reduced from the present 60% to 20%.
OBJECTIVE B:	To better serve students in the LPN program in order that the program can be more successful.

If Objective A could be achieved, real progress in reducing the attrition rate would be specifically measured and demonstrated. Conversely, the achievement of Objective B could be interpreted differently by differing individuals because the objective is not measurable.

Program objectives written in measurable terms can demonstrate progress.

WHY WRITE PROGRAM MANAGEMENT OBJECTIVES?

Program management objectives can:

1. Serve as an excellent planning vehicle.
2. Foster efficient use of personnel energies.
3. Provide a framework for budget decisions.
4. Demonstrate progress and establish a basis for evaluation.

WHAT ARE THE COMPONENTS OF A MEASURABLE OBJECTIVE?

WHAT ARE THE COMPONENTS OF A MEASURABLE OBJECTIVE?

Measurable objectives, whatever their use, have three basic components:

Outcome Statement:	A statement that describes the task activity, knowledge, attitude, or other accomplishment being sought.
Conditions:	A statement of the circumstances under which the outcome will be observed or measured.
Criteria:	The standards—levels, or quality of outcome being sought—that, when achieved, will identify acceptable attainment of the outcome.

SAMPLE OUTCOME STATEMENTS:

Prepare a tossed salad

Type a business letter

Decrease student withdrawals

Improve facility utilization

SAMPLE CONDITIONS: (Shown Underlined)

Prepare a Tossed Salad Using Lettuce, Radishes, Tomatos, and Cheese.

Using an Electric Typewriter, Prepare a Business Letter as Per Dictation Given by Instructor.

By June, 1972, Decrease Student Withdrawals.

Increase Facility Utilization During the Fall Semester.

SAMPLE CRITERION STATEMENTS: (Shown Underlined With Double Lines)

Prepare A Tossed Salad Using Lettuce, Radishes, Tomatoes, and Cheese That Matches the A-Z Recipe Portions in Sufficient Quantity to Feed 100 People with 5% or Less Left After Serving.

By June, 1972, Decrease Student Withdrawal By 10%.

Increase Facility Utilization During the Fall Semester to Obtain 80% Utilization.

Using An Electric Typewriter Prepare A Business Letter As Per Dictation Given by Instructor in 3 Minutes With No More Than One Typing Error.

QUESTIONS USEFUL IN ANALYZING OR IDENTIFYING EACH COMPONENT OF A MEASURABLE OBJECTIVE:*

1. Answer these questions yes and your outcome statements are appropriate.

    A. Does your statement specify what activity, ability, skill, or attitude is to be achieved?

    B. Is your statement a short descriptive sentence containing "action" verbs?

2. Answer these questions yes and your conditions statements are appropriate. Does the statement indicate (if relevant):

    A. Time limits of performance

    B. Place of performance

    C. With what materials or equipment (tools, clothing, etc.)

    D. Under what special constraints (limitations given, job aids, environmental conditions, etc.)

3. Answer these questions yes and your criteria statements are appropriate.

    A. Is there a statement of how well the outcome (quality) should be achieved (and/or)

    B. Does your statement clearly indicate how many aspects (quantity) must be achieved to obtain "minimum required success" level?

    C. Are the following qualifications stated (if relevant)?

        (1) The time allowed to complete activity or performance called for in the outcome statement.
        (2) The number, percentage, proportion of successful attempts required.
        (3) The results that will be considered acceptable.

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*Adapted from McGlone and Pellant.

SELF-TEST ON IDENTIFYING CONDITIONS AND CRITERIA STATEMENTS

In the following statements underline the condition statement with a single line and the criteria statement with a double line.

Using a vacuum gauge, set the timing on any engine in accordance with the manufacturer's specifications for that engine.

Given an assembly drawing, identify and correctly translate all welding symbols used in accordance with military standards.

Given an unfinished metal casting, be able to surface, drill, and top according to the specifications indicated on the attached blueprint.*

Given a list of technical terms, commonly used in nursing, match them to definitions given with 8 out of 10 being matched correctly.*

Provided with an outdoor TV antenna bit and appropriate tools, be able to install the antenna according to trade standards, making sure the resulting TV picture is free of snow.*

By the fall of 1972, increase freshmen enrollment in mechanical technology by 10% over the fall of 1971 figure.

*Mager and Beach, 1967.

ANSWERS TO SELF-TEST ON CONDITIONS AND CRITERIA STATEMENTS

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*Mager and Beach, 1967.

Now that we have clarified the components of a measurable objective—let's review again the two types of objectives to be considered for any career education program:

ONE: STUDENT PERFORMANCE OBJECTIVES

Statements describing what the student (learner) will do following successful completion of instruction.

Word pictures describing student performance when he has successfully completed a learning sequence.

Word images describing visible, observable student performance or products of student performance that will be displayed by successful learners

TWO: PROGRAM MANAGEMENT OBJECTIVES

Statements describing program and multiprogram level targets related to specific quantitative indicators such as staff utilization, facility utilization, student attrition, student placements, unit cost, etc.

Statements describing management intents of planning for change and problem solving.

WHAT ARE SOME TECHNIQUES USEFUL IN WRITING MEASURABLE OBJECTIVES?

WHAT CONSTITUTES APPROPRIATE STUDENT PERFORMANCE OBJECTIVES FOR CAREER EDUCATION PROGRAMS?

Outcome statements should reflect the competencies included in the job for which the student is being trained.

Conditions should relate as closely as possible to the time limits, materials or equipment, or other special limitations that the student will be confronted with when performing tasks on-the-job

Criteria should reflect the standards that will be used to judge successful performance of tasks on-the-job.

This suggests a necessary first step for curriculum planners prior to writing objectives, i.e. the identification of competencies and tasks to be performed on-the-job!

HOW CAN COMPETENCIES THAT CAN SERVE AS THE BASIS FOR WRITING STUDENT PERFORMANCE OBJECTIVES BE IDENTIFIED?

By Using Techniques Such As:

Past Experience in training persons for a given job.

Advice of others who have trained persons for a given job.

Competency studies, accreditation standards (as prepared by professional organizations), job descriptions, job evaluation standards, etc., prepared by persons knowledgeable about the job to be trained for.

Advice of persons presently performing a given job and/or supervising others performing the job.

Complete a competency identification activity.*

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*See Appendix A for competency identification procedures (Activity 2.2.1).

COMPARING TECHNIQUES FOR TASK IDENTIFICATION

TECHNIQUE	ADVANTAGES	DISADVANTAGES
Past experience in training persons for a given job	Can save time for the curriculum planner	Assumes that training has been competency oriented.
Advice of others who have trained persons for a given job.	Can save time for the curriculum planner	Assumes other person has as successful a training program. While the job trained for may be the same—competencies required in various locals may differ
Competency studies, accreditation standards, job descriptions, job evaluation standards, etc., prepared by persons knowledgeable about the job to be trained for	If up-to-date, it's probably the best way for curriculum planner to obtain most complete competency list.	Such information is difficult to identify in many job areas. Often does not consider localized native of many jobs.
Advice of persons presently performing a given job and/or supervising others performing the job.	Accurate first-hand as well as up-to-date knowledge of job requirements Formalize communication with employers, etc.	Often difficult to get such persons to spend time required to thoroughly analyze their job.
Complete a competency identification activity	Offers a systematic means to analyze a job(s). If used with advisory committee, incorporates the advantages of technique immediately above. Can be used as a means of localizing data obtained with previous techniques.	Time consuming More difficult when familiarity with job on part of curriculum planner is limited.

HOW CAN COMPETENCY IDENTIFICATION INFORMATION BE USED TO WRITE MEASURABLE STUDENT PERFORMANCE OBJECTIVES?

STEP 1: Considering each competency individually, answer the following questions:

A. What is to be done? (Task, competency or outcome statement)

B. Under what conditions is it to be done? (Equipment to be used, time limits, environmental conditions, tools, etc.)

C. What criteria will be used to determine when it has been done satisfactorily? (Degree of accuracy, minimum acceptable performance)

STEP 2: Since answers to the previous three questions reflect the three (3) components of a measurable objective, combine responses to prepare an objective.*

NOTE: See student performance objectives worksheet below (Form A.)

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*See Appendix B on objectives writing procedures (Activity 2.2.2).

FORM A

STUDENT PERFORMANCE OBJECTIVES WORKSHEET

PROGRAM

TASK OR OUTCOME STATEMENT	CONDITIONS	CRITERIA
(Sample Career Orientation Course Objective) Students will make tentative education plans (choices) based upon their understanding of careers from the five occupational fields.	Using the resource materials distributed in the course.	The student will list reasons for his choice related to: (1) employment opportunities (2) educational preparation required (3) job conditions (4) personal interests.

WHAT CONSTITUTES APPROPRIATE PROGRAM MANAGEMENT OBJECTIVES FOR VOCATIONAL PROGRAMS?

Outcome statements describing, (1) regular management duties and responsibilities and (2) plans for change and problem-solving.

Conditions which specify the target date and/or time period for accomplishing the desired outcome.

Criteria which specify the range of acceptable quantitative results or describe the conditions that will exist upon accomplishment of the objective.

WHAT ARE SOME SOURCES OF INFORMATION THAT CAN BE USED AS A BASIS FOR PROGRAM MANAGEMENT OBJECTIVES?

1. Your position or job description which should specify your areas of responsibility.

2. Institutional evaluation reports from:

   North Central Association
   State Division of Vocational and Technical Education
   Advisory Committees
   Institutional Committees

3. Evaluation of institutional student data including enrollments, graduates, early leavers, attrition, etc.

4. Evaluation of budget reports relative to facility utilization, unit cost, total assignable cost/income, staff utilization, etc.

5. Program planning and evaluation data:

   Follow-up studies
   Student interest
   Manpower supply & demand
   Student placements

SUGGESTED PROCEDURE FOR WRITING PROGRAM MANAGEMENT OBJECTIVES:

STEP ONE: Considering the sources of information suggested on page 41 write a tentative list of measurable objectives you realistically feel can be accomplished during the next year.

STEP TWO: Discuss this tentative list with both your superior and subordinates in order to get feedback for modification.

STEP THREE: Establish a conference with your superior so the two of you reach agreement on your objectives for the coming year.

STEP FOUR: Evaluate your progress by referring back to the stated objectives you and your superior agreed upon.

THE PROCEDURE FOR ESTABLISHING PROGRAM MANAGEMENT OBJECTIVES IS SUGGESTED ALSO FOR THOSE WHO WORK UNDER YOUR SUPERVISION.

FORMS B & C (Page 44 and 45) ARE DESIGNED AS AN AID FOR WRITING MEASURABLE PROGRAM MANAGEMENT OBJECTIVES.

FORM B

PROGRAM MANAGEMENT OBJECTIVES WORKSHEET
(For Program Objectives with Specific Quantitative Indicators)

NAME ______________________ DATE ______________

Title and/or Position ______________________

CONDITIONS	OUTCOME STATEMENT	CRITERIA			
		REALITY BASED RESULTS			
TIME PERIOD AND/OR TARGET DATE	MANAGEMENT RESPONSIBILITY	Minimum Acceptable	Average Expected	Maximum Probable	Unit of Measurement or Formula
(SAMPLE OBJECTIVES)					
By September, 197-	The beginning full time enrollment in the Nursing Program will be increased to:	78	85	95	number of students
Between the first and second semester-	The attrition rate for the Business Program be reduced by:	8	12	15	percentage
In June of 197-	The number of students completing the Agricultural Program will be:	33	40	42	number of students

PROGRAM MANAGEMENT OBJECTIVES WORKSHEET

(For Program Objectives that do not have Specific Quantitative Indicators.)

NAME ______________________ DATE ______________

Position and/or Title ______________________

CONDITIONS	OUTCOME STATEMENT	CRITERIA
TIME PERIOD AND/ OR TARGET DATE	PLANS FOR CHANGE & PROBLEM SOLVING	STATEMENT DESCRIBING CONDITIONS THAT WILL EXIST
(SAMPLE OBJECTIVES)		
During the 197- school year-	Ten members of the career education staff will visit an exemplary program at another school.	Visitation reports analyzing the strengths and weaknesses of the program visited will be prepared and distributed to all teachers.
By May 1, 197-	The advisory committee for the Cooperative Office Occupations Program will have held two meetings.	A report of the committee's activities and recommendations will be sent to the Superintendent and the Board of Education.

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APPENDIX A

TECHNIQUES FOR COMPETENCY IDENTIFICATION

This section contains a procedure for identifying job competencies as prepared by the Illinois Occupational Curriculum Project*—Joliet Junior College. The procedures are presented in the form in which they appear in the project manual titled, Activity Manual for Occupational Program Development.

For an additional procedure for completing job and task analysis, consult the publication, Developing Vocational Instruction by Mager and Beach, Fearon Publishers, Belmont, California, 1967, 83 pages.

*A Research and Development Project funded by the Research and Development Unit, Division of Vocational and Technical Education, State Board for Vocational Education and Rehabilitation, Illinois.

ACTIVITY: Identify the competencies that will be required of a program graduate.

INTRODUCTION

A commonly accepted goal of any occupational offering is that upon completion of the program, a graduate will be ready for employment. "Job readiness" implies that the graduate of a program will have a reportoire of competencies that match job entrance and advancement requirements.

In order that this match between the graduates reportoire of competencies and requirements for job entry (and advancement) be as similar as possible it follows that a curriculum planner should use job entry (and advancement) competencies as a basis for program objectives.

Program and course objectives are statements of what the student will be able to know or do (his reportoire of competencies) upon successful completion of the instructional program. Competency identification for the targeted job(s) then is an essential step in program planning and required as a basis for writing measurable student performance objectives.

For the purpose of these activities, a competency is defined as a statement of what the student must be capable of doing or must know to succeed at his chosen vocation.

Competency description will, in most cases, be made in a combination of several forms: (a) task statements, (b) listing of skills, (c) background knowledge statements, (d) job entrance requirements, (e) program topics, (f) attributes of good employee, (g) job duties and responsibilities, (h) job evaluation standards.

The procedure in this activity is designed to assist you in developing a listing of competencies that can serve as a basic (using the various descriptors) for writing measurable student performance objectives and later organizing course and/or program content. (Activity 2.2.2 describes a method for writing student performance objectives based upon information gathered in this activity).

PROCEDURE	RESOURCES
1. Familiarize yourself with the job(s) for which you will be attempting to identify competencies that can serve as a basis for writing measurable student performance objectives (which in turn will serve as a basis for organizing course and/or program content.) As you review information (literature and visits), begin compiling a listing of competencies. Don't try to evaluate, classify, or rate them but just concentrate on generating a list as comprehensive as possible. The following is a listing of ways in which you can gain a familiarity with a job and identify some typical competencies that a person trained for that job must possess. Competencies you identify can be listed on "Competency Identification and Analysis Worksheet" Form 2.2.1.3 (Recall from the introduction to this activity the possible forms in which competencies may be expressed).	Competency Identification Analysis Worksheet, Form 2.2.1.3
A. Obtain and review course and/or program outlines, course and/or program objectives, and competency lists (availability of competency lists is usually limited) prepared by others having offered training programs for the job area under consideration.	
B. Obtain and review sample job descriptions prepared by organizations presently employing persons for the job(s) under consideration.	

PROCEDURE (continued)	RESOURCES
C. Interview persons presently employed or supervising others employed in the job area under consideration.	
D. Obtain and review accreditation standards (for licensed occupations), competency studies, or other publications wherein competency information on the job(s) under consideration is reported.	
2. With the information you gathered in step one, you are probably confronted with one of the following situations: Situation 1: You have at hand a job description(s) and an initial list of competencies for the job area under development. IF THIS IS THE CASE, GO NOW TO STEP FIVE OF THIS PROCEDURE. Situation 2: You have gathered information but it is not in the form of a job description and an initial list of competencies. IF THIS IS THE CASE, GO NOW TO STEP THREE OF THIS PROCEDURE.	
3. Develop a job description(s) based upon information gathered in step one of this procedure. When preparing a job description your self consider: A. Typical or representative tasks performed on the job B. Typical conditions under which the worker must perform the job C. Some of the more common tools or equipment used on the job	Example Job Descriptions Forms 2.2.1.1 and 2.2.1.2
NOTE: See example job descriptions, Forms 2.2.1.1 and 2.2.1.2.	
4. Develop an initial list of competencies based upon information gathered in step one and the job description(s) developed in step three. Essentially, to create such a listing you should be seeking answers to the following two questions: A. What are some common tasks or activities a person must be able to do?and/or B. What must a person know to be successful at the job?	
5. List competencies you may have gathered in previous steps in Column (A) on the "Competency Identification and Analysis Worksheet", Form 2.2.1.3.	Form 2.2.1.3
For an example listing of competencies, see Form 2.2.1.4.	Form 2.2.1.4
NOTE: The listing of competencies you have at this point is probably only tentative – the following steps of this procedure are designed to help you perfect this list using a specialized occupational advisory committee.	
6. Organize a specialized occupational advisory committee to assist you in perfecting your competency list and gathering the additional information necessary to later write student performance objectives.	
NOTE: See Form 2.2.1.5 for some suggestions on membership and procedure for organizing a specialized occupational advisory committee.	Form 2.2.1.5

PROCEDURE (continued)	RESOURCES
7. Schedule and plan a meeting with your specialized advisory committee for the purpose of identifying competencies for the job area under consideration. NOTE: It is important that you have a well organized meeting that both you and committee members feel is productive. If the committee members do not feel that the meeting is productive, they will be reluctant to cooperate in the future when you will again need their advice and input. The purpose of this meeting as mentioned above is to identify competencies. Do not rely on the committee for all of the competency listings, but rather go to the meeting with an initial listing as comprehensive as you can generate using your own expertise and the suggestions in previous procedures.	
8. Meet with your specialized advisory committee to continue the process of competency identification. You could use Form 2.2.1.3 or you may just want to make rough draft listings to be entered on the forms for evaluation at a later time. Begin by having the committee briefly review the competency listing that you have generated and then ask them to help you expand and add to the list making it comprehensive and inclusive for the job area under consideration. NOTE: Attached to Form 2.2.1.3, "Competency Identification and Analysis Worksheet" are some diagnostic questions that you may wish to use with your advisory committee to isolate a listing of competencies of Column A. Notice that similar questions are provided for other columns of the form and will be introduced in later steps. Attachment F is a summary of all the diagnostic questions. While generating this list do not attempt to limit, evaluate, refine, classify, etc., the competency suggestions. This can be done later and at this time it will have a tendency to stifle the free response suggestions you might get from the committee. Keep probing for competencies until you and the committee agree that the list is inclusive for the job. As time permits in this meeting, the vague, general, or broad competency statements can be further studied by asking the committee to describe examples of employees having the competency.	Form 2.2.1.3
9. After the first committee meeting devoted to competency identification, the competencies generated by the advisory committee should be organized in preparation for completing the remaining columns on Form 2.2.1.3, "Competency Identification and Analysis Worksheet." The following steps are suggested. A. Review the list to identify those items that are most general and would make up an inclusive listing of general headings or topics for the job. B. Group with each one of these competencies other listings that would be sub-competencies for the more general one. C. Again, review the items and indicate those which are still too broad and need further breakdown. You will have to use some judgment as to what is sufficient detail and what is too much detail. Do not include detail of the level that would be taught at a daily instruction plan.	Form 2.2.1.3

PROCEDURE (continued)	RESOURCES
D. Identify those competencies which deal with vague, abstract, or otherwise unclear type competencies, especially those dealing with human relations. These will need special attention by your committee in order to identify the performance being sought.	
E. List your competencies on Form 2.2.1.3 and have the worksheets (Form 2.2.1.3) ready for the second advisory committee meeting described in step ten.	Form 2.2.1.3
10. Meet your specialized occupational advisory committee a second time to complete columns B, C, D, and E of the "Competency Identification and Analysis Worksheet." At this time your advisory committee will rate the importance of each competency on the list along with an estimate of frequency an average employee would apply the competency. Information in Column D and E will provide content for later writing student performance objectives.	
NOTE: Again, diagnostic questions related to gathering information to complete each of these columns are attached to Form 2.2.1.3.	Form 2.2.1.3
11. Since the completion of the "Competency Identification and Analysis Worksheet", Form 2.2.1.3, to this point has been based on data you obtained from any of a number of sources mentioned in step one and the contribution of your advisory committee, you may wish to test the information you have on other knowledgeable individuals. This step will assist you in assessing the completeness of your competency list and the extent of agreement among persons knowledgeable about the job. To accomplish this, follow these steps:	
A. Using a form containing the same three columns as (A, B, and C) of Form 2.2.1.3, list the competency statements developed in this activity in the first column of the form. Leave "Frequency of Performance", Column B, and "Importance", Column C, blank since these are the columns you will be asking others to react in. Provide instructions for the people who will be asked to respond to each competency statement entering their response in Columns B and C. Also, instruct them to add and rate other competency statement they feel should be included.	
B. Select a sample of people to rate the second and third columns (Column B and C) and possibly add to the list of competencies in the first column (Column A) of Form 2.2.1.3. This sample should contain a variety of people such as foremen, supervisors, workers, apprentices, and others having working knowledge of the job under consideration. This sample should not contain persons from the specific advisory committee used to generate the list. Furthermore, persons in the sample should not be informed of the person on the advisory committee involved in the preparation of the list of competencies they will be rating. (This suggestion is made so as not to bias the ratings you are seeking).	
C. Mail or hand carry the listing of competency statements to the people in your sample. Ask them to do the rating at their convenience (be sure they are aware of the importance and urgency of this task and establish deadline date for them to respond) and return it to you as per your instructions. (mail, visit)	
D. Tabulate the results on another set of forms. The results of this tabulation should represent the majority or consensus of opinion.	

PROCEDURE (continued)	RESOURCES
NOTE: If most of the responses are about the same you can skip procedures E and F below. However, if there is considerable variation in the responses, you may need to obtain additional feedback from the group. Steps E and F will help you obtain a better consensus reaction or rating. E. Return the tabulated results to the sample with instructions to: (1) Review the ratings and indicate their agreement or disagreement. (2) If they disagree with the ratings, explain why and to what extent they disagree. (3) Return the results to you. F. Again, tabulate the results and determine which ratings need to be changed on the basis of the second cycle of responses. You should now have the consensus opinion of your group and the information should have a high degree of validity and reliability.	

FORM 2.2.1.1

Example Job Description

Occupation: Machinery Serviceman

D.O.T. No.

O.E. No.

The machinery serviceman is a generalist, has mechanical skills and is an expert in diagnosing machinery problems and in correcting such situations. He is able to listen and observe a specific machine and correctly diagnose the problem. He must be an expert mechanic as well as diagnostican of troubles. He must be familiar with all makes and models of machinery, must know the nomenclature of parts, and be able to specify specific new parts and/or be able to repair the inoperative old parts.

The job requires that he be able to operate a truck, use and operate many different tools and equipment, meet customers, and be acquainted with the operation of all machinery. He must be "on call" essentially all the time during the heavy work seasons. During the off season, he may be required to assist in machinery repair in the shop as well as be "on call" to the customers. He is required to maintain customer service records, order new parts, and have information available as to the cost of new machinery and the trade-in value of used machinery.

FORM 2.2.1.2.

Example Job Description

Occupation: Garden Supply Salesman

D.O.T. No.

O.E. No.

The garden supply salesman has a knowledge of lawns, shrubs, annual and perennial flowers, pest and disease control, soil structure, fertility, and other information that enables him to advise individuals on the planting and maintaining of plants. He provides a service in the design, selection, and maintenance of most plant life. He possesses a fundamental knowledge of the methods of propagation by seeding, budding, grafting, layering and cutting. He is acquainted with the various plant diseases. He is able to provide sketches of landscaping design to various customers to meet their specifications, He is often required to supervise non-skilled garden supply store helpers.

The job requires that he be able to drive a truck, meet customers, and be acquainted with and operate manual equipment. During the off-season, he may be required to participate in the preparation and seeding of new greenhouse beds. He is required to write out customer orders, make sales, and maintain customer records.

SUGGESTIONS FOR USING FORM 2.2.1.3.

Form 2.2.1.3 is suggested for your use in identifying job competencies and other pertinent information related to each competency. The following paragraphs explain the use of each column of the form – attached also are questions that should help you draw information from your advisory committee for each column.

Column A. It is suggested that Column A be used for listing competency statements for any particular job. This will undoubtedly require several pages of the form. You may want to use the form during the initial listing; however, it may be better to develop an initial list (from your own experience, literature, interviews, advisory committee, etc.) on blank paper than organize this list before entering it on the form. A competency statement for the purpose of this activity is a statement describing what a person must be able to do or what he or she must know to be successful on the job. See example competency statements on Form 2.2.1.4.

Column B. This column is provided for making frequency ratings, indicating the approximate frequency that the employee would become engaged in the activity. This will, of course, be an average figure based on a variety of estimates and should not be considered as an exact figure. The purpose of the rating is to get an indication of relative importance based on how often the employee would need this competency. A competency encountered on a daily basis may be considered much more important than one encountered only twicc per year. See example frequency ratings on Form 2.2.1.4.

Column C. In Column C the activity is rated for its importance for both job entry and job advancement. This rating is again an average and should represent the consensus of some of your own judgments, literature, interviews, advisory committee members, etc. This evaluation allows for a rating independent of frequency. For example, a competency that is needed only once a month may be rated as essential to the job and another competency encountered daily may only be desirable or even unnecessary. See example importance ratings on Form 2.2.1.4.

Column D. Conditions under which the employee will demonstrate or execute the competency is important in structuring learning and evaluating situation. This column should include statements of special or important conditions under which the employee must demonstrate the competency; i.e., will the employee have access to special tools, specific instructions, have a time limitation, etc. This column is not intended for listing details, steps, procedures, or other detailing of the original competency statement. See example condition statements on Form 2.2.1.4

Column E. This column is for listing the criteria that will be used to judge satisfactory achievement of each competency listed in Column A. Criteria statements may contain quantity, quality, time standards. See example criteria statements on Form 2.2.1.4.

COMPETENCY IDENTIFICATION AND ANALYSIS WORKSHEET

Job ______________________

Column A (see attachment A for Diagnostic Questions	Column B (see attachment B for Diagnostic Questions		Column C (see attachment C for Diagnostic Questions								Column D (see attachment D for Diagnostic Questions)	Column E (see attachment E for Diagnostic Questions)
Competency Statement	Frequency of Performance		Importance								Conditions for Application of Competency	Criteria That Exhibit Satisfactory Application of the Competency
	Every Day Frequently Rarely	No. of Times Per Week, Day, Year or Month	For Job Entry				For Job Advancement					
			E	D	U	NS	E	D	U	NS		

E – Essential; D – Desirable; U – Unnecessary; NS – Not Sure

FORM 2.2.1.3
ATTACHMENT A

DIAGNOSTIC QUESTIONS TO AID IN IDENTIFYING COMPETENCY STATEMENTS (COLUMN A)

1. What does the person do in performing the job; i.e., what are the common tasks or activities a person must be able to do?

2. What must a person know to be successful on the job?

3. What background information (knowledge) is most important for the employee to know?

4. What are the day-to-day activities performed by the employee?

5. What are the day-to-day problems encountered by the employee?

6. Must the employee solve problems in performing his job? If yes, what type of problems must he solve?

ADDITIONAL DIAGNOSTIC QUESTIONS WHICH MAY BE USED

7. What are the entrance requirements for obtaining a job with your company?
   A. Are special tests given? If yes, what are they?
   B. Is a certain level of schooling required?

8. Are there handbooks or lists of rules which an employee must follow in this organization?

9. What kinds of things should the student be able to do at the end of the course or program that will most facilitate his becoming a skilled technician (craftsman, nurse, mechanic, etc.) in the least amount of time?

FORM 2.2.1.3
ATTACHMENT B

DIAGNOSTIC QUESTIONS TO AID IN IDENTIFYING FREQUENCY OF PERFORMANCE (COLUMN B)

1. How often is the given competency needed or used?
2. Is the competency used everyday? Every week? Every month? Every year?
3. On the average is the competency needed five, ten, twenty-five times per day? Per week? Per month?

FORM 2.2.1.3
ATTACHMENT C

DIAGNOSTIC QUESTIONS TO AID IN IDENTIFYING THE IMPORTANCE OF THE GIVEN COMPETENCY (COLUMN C)

1. Is the competency essential for job entry? Job advancement?
2. Is the competency desirable for job entry? Job advancement?
3. Is the competency unnecessary for job entry? Job advancement?
4. What if the competency cannot be developed in the educational program?
5. How many of your entering employees now have this competency?
6. How many of those who advance in your organization have this competency?

FORM 2.2.1.3.
ATTACHMENT D

DIAGNOSTIC QUESTIONS TO AID IN IDENTIFYING CONDITIONS UNDER WHICH THE COMPETENCY WILL BE APPLIED (COLUMN D)

1. Under what conditions is the competency to be used or to be performed?
   - A. Where are the competencies performed?
   - B. When are the competencies performed?
   - C. How are the competencies performed?
   - D. With whom are the competencies performed?
   - E. Are there time limits within which the job or criteria must be performed?
2. What tools or major equipment must the employee be able to operate?
3. Does the employee work mainly with equipment or does he come in contact with the customer?
4. Does the employee need any special skills in performing the competencies?
5. What circumstances must exist for the competency to be successfully applied?
6. Are there special requirements?
   - A. Certification
   - B. Registry
   - C. Union requirements
   - D. Age restrictions
   - E. Physical requirements
7. Are there special tools or equipment the employee must use?
   - A. What is the employee supposed to do with the special tools, forms, etc.?
   - B. What is the employee not supposed to do with the special tools?
8. Are there forms which must be filled out by the employee?
   - A. What are the forms?
   - B. When are they filled out?
9. What attitudinal characteristics are essential (if any) in performing the competencies?
10. Is the employee expected to diagnose a problem and to make a decision as to what he must do to correct the problem? If yes, how do you train the employee to diagnose problems?

11. Is there a sequence which must be followed in the performance of a competency correctly?

12. Must the employee be able to recognize dangers when he is performing a competency?

13. Does the employee deal with the public while on the job?

14. Are any special or personal attributes required for job success?

15. Are special manipulative skills required? If yes, what are they? What must the employee be able to manipulate?

16. Must the employee be able to recall certain facts, sound, conditions, reasons, knowledge, etc.? If yes, what must he be able to recall?

17. Must the employee be able to give or to receive clear and concise verbal orders or directions? If yes, what types or forms of speech must be used?

FORM 2.2.1.3
ATTACHMENT E

DIAGNOSTIC QUESTIONS TO AID IN IDENTIFYING CRITERIA THAT EXHIBIT SATISFACTORY APPLICATION OF THE COMPETENCY (COLUMN E)

1. What criteria can be used to evaluate acceptable employee performance of the competency?

    A. What quality?

    B. How fast? (Time or quantity)

2. How well should the outcome be achieved?

3. What criteria can be used to evaluate unacceptable competency performance?

4. Must the employee be able to discriminate between items or things for a quality judgment? If yes, what are these itmes?

5. What are the most common mistakes made by employees in performing the task?

    A. Beginning employees?

    B. Skilled employees?

6. Upon what basis do you evaluate your employees for promotion?

7. What factors are used in evaluation?

8. Why do people get fired from this job?

9. Why do people get promoted?

10. Describe your best employees.

11. Describe your poorest employees.

FORM 2.2.1.3
ATTACHMENT F

SUMMARY SHEET

DIAGNOSTIC QUESTIONS WHICH CAN BE USED TO IDENTIFY:

A. Competency Statements
B. Frequency of Competency Performance
C. Importance of the Competency
D. Conditions for the Application of the Competency
E. Criteria That Exhibit Satisfactory Application of the Competency

Diagnostic Questions	Question Will Aid In Identifying:				
	Competency Statement	Frequency of Performance	Importance	Conditions for Application	Criteria That Exhibit Satisfactory Application
1. What does the person do in performing the job; i.e., what are the common tasks or activities a person must be able to do?	X				
2. What must a person know to be successful on the job?	X				
3. What background information (knowledge) is most important for the employee to know?	X				
4. What are the day-to-day activities performed by the employee?	X				
5. What are the day-to-day problems encountered by the employee?	X				
6. Must the employee solve problems in performing his job? If yes, what type of problems must he solve?	X			X	
7. What are the entrance requirements for obtaining a job with your company?	X			X	
A. Are special tests given? If yes, what are they? B. Is a certain level of schooling required?	X X			X X	

FORM 2.2.1.3 (cont.)
ATTACHMENT F

Diagnostic Questions	Question will aid in identifying:				
	Competency Statement	Frequency of Performance	Importance	Conditions for Application	Criteria That Exhibit Satisfactory Application
8. Are there handbooks or lists of rules which an employee must follow in this organization?	X			X	
9. What kinds of things should the student be able to do at the end of the course or program that will most facilitate his becoming a skilled technician (craftsman, nurse, mechanic, etc.) in the least amount of time?	X				X
10. How often is the given competency needed or used?		X			
11. Is the competency used everyday? Every week? Every month? Every year?		X			
12. On the average is the competency needed five, ten, twenty-five time per day? Per week? Per month?		X			
13. Is the competency essential for job entry? Job advancement			X		
14. Is the competency desirable for job entry? Job advancement			X		
15. Is the competency unnecessary for job entry? Job advancement?			X		
16. What if the competency cannot be developed in the educational program?			X		
17. How many of your entering employees now have this competency?			X		
18. How many of those who advance in your organization have this competency?			X		

Diagnostic Questions	Question will aid in identifying:				
	Competency Statement	Frequency of Performance	Importance	Conditions for Application	Criteria That Exhibit Satisfactory Application
19. Under what conditions is the competency to be used or to be performed?				X	
A. Where are the competencies performed?				X	
B. When are the competencies performed?				X	
C. How are the competencies performed?				X	
D. With whom are the competencies performed?				X	
E. Are there time limits within which the job or competencies must be performed?				X	X
20. What tools or major equipment must the employee be able to operate?				X	
21. Does the employee work mainly with equipment or does he come on contact with the customer?				X	
22. Does the employee need any special skills in performing the competencies?				X	
23. What circumstances must exist for the competency to be successfully applied?				X	
24. Are there special requirements?					
A. Certification				X	
B. Registry				X	
C. Union requirements				X	
D. Age restrictions				X	
E. Physical requirements				X	
25. Are there special tools or equipment the employee must use?					
A. What is the employee supposed to do with the special tools, forms, etc?				X	
B. What is the employee not supposed to do with the special tools?				X	
26. Are there forms which must be filled out by the employee?					
A. What are the forms?				X	
B. When are they filled out?				X	

FORM 2.2.1.3 (cont.)
ATTACHMENT F

Diagnostic Questions	Question will aid in identifying:				
	Competency Statement	Frequency of Performance	Importance	Conditions for Application	Criteria That Exhibit Satisfactory Application
27. What attitudinal characteristics are essential (if any) in performing the competencies?				X	
28. Is the employee expected to diagnose a problem and to make a decision as to what he must do to correct the problem? If yes, how do you train the employee to diagnose problems?				X	
29. Is there a sequence which must be followed in the performance of a competency correctly?				X	
30. Must the employee be able to recognize dangers when he is performing a competency?				X	
31. Does the employee deal with the public while on the job?				X	
32. Are any special or personal attributes required for job success?				X	
33. Are special manipulative skills required? If yes, what are they? What must the employee be able to manipulate?				X	
34. Must the employee be able to recall certain facts, sounds, conditions, reasons, knowledge, etc.? If yes, what must he be able to recall?				X	
35. Must the employee be able to give or to receive clear and concise verbal orders or directions? If yes, what types or forms of speech must be used?				X	
36. What criteria can be used to evaluate acceptable employee performance of the competency? A. What quality? B. How fast? (time or quantity)					X X X

FORM 2.2.1.3 (cont.)
ATTACHMENT F

Diagnostic Questions	Question will aid in identifying:				
	Competency Statement	Frequency of Performance	Importance	Conditions for Application	Criteria That Exhibit Satisfactory Application
37. How well should the outcome be achieved?					X
38. What criteria can be used to evaluate unacceptable competency performance?					X
39. Must the employee be able to discriminate between items or things for a quality judgment? If yes, what are these items?					X
40. What are the most common mistakes made by employees in performing the task? A. Beginning employees?					X
B. Skilled employees?					X
41. Upon what basis do you evaluate your employees for promotion?					X
42. What factors are used in evaluation?					X
43. Why do people get fired from this job?					X
44. Why do people get promoted?					X
45. Describe your best employees.					X
46. Describe your poorest employees.					X

FORM 2.2.1.4

COMPETENCY IDENTIFICATION AND ANALYSIS WORKSHEET

JOB ____________________

Column A (see attachment A for Disgnostic Questions)	Column B (see attachment B for Diagnostic Questions)		Column C (see attachment C for Diagnostic Questions)								Column D (see attachment D for Diagnostic Questions	Column E (see attachment E for Diagnostic Questions)
Competency Statement	Frequency of Performance		Importance								Conditions for Application of Competency	Criteria That Exhibit Satisfactory Application of the Competency
	Every Day Frequently Rarely	No. of Times Per Week, Day, Year or Month	For Job Entry				For Job Advancement					
			E	D	U	NS	E	D	U	NS		
Diagnose most T.V. problems	Everyday	8/day		X			X				See and listen to T.V. with malfunction	Explain which circuit is malfunctioning and the nature of the malfunction (voltage, tube)
Repair electronic circuits that have malfunction identified	Everyday	8/day	X				X				Standard shop situation w/access to standard tools, test equipment and replacement parts	Removal of bad part, usually can verify that it is bad, replace new part, and check circuit for proper operation.
Replace picture tube and adjust for proper picture	Frequently	3/week	X				X				Standard shop & tools manufacturer's specifications	New tube installed and picture with proper linearity, focus, margin brightness, & contrast.
Align of R F, IF, video and picture	Rarely	1/month		X				X			Standard shop and necessary test equipment manufacturer's specifications	Demonstrate picture of proper quality with test pattern and from normal transmission.

E – Essential; D – Desirable; U – Unnecessary; NS – Not Sure

FORM 2.2.1.4 (cont.)

COMPETENCY IDENTIFICATION AND ANALYSIS WORKSHEET

JOB ____________________

Column A (see attachment A for Diagnostic Questions)	Column B (see attachment B for Diagnostic Questions)		Column C (see attachment C for Diagnostic Questions)								Column D (see attachment D for Diagnostic Questions	Column E (see attachment E for Diagnostic Questions)
Competency Statement	Frequency of Performancd		Importance								Conditions for Application of Competency	Criteria That Exhibit Satisfactory Application of the Competency
			For Job Entry				For Job Advancement					
Freq	Every Day Frequently Rarely	No. of Times Per Week, Day, Year or Month	E	D	U	NS	E	D	U	NS		
Wait on walk-in customers bringing equipment to be repaired in the shop	Everyday	10-15/day		X			X				Customer brings in malfunctioning equipment such as, radio, TV, record and tape player, etc; to shop for service or repairs	Get customer's name, address, phone number, and specific complaint. Give customer an estimate of completion time and answer concerns as best you can showing respect and courtesy.
Wait on customers picking up equipment which has be been repaired	Everyday	10-15/dat		X			X				Customer has come to pick up serviced equipment	Collect for services rendered; answer customer's concerns as best you can. Show respect, be courteous, and thank them for their business.

E – Essential; D – Desirable; U – Unnecessary; NS – Not Sure

FORM 2.2.1.5.

Establishing a specialized occupational advisory committee

INTRODUCTION

The specialized occupational advisory committee is usually organized to advise you regarding instructional program in specific trades, crafts, or clusters of occupations. You probably would utilize a specific committee for each occupational program area. For example, you may have a specialized advisory committee for horticulture, data processing, marketing mid-management, etc.

The specialized occupational advisory committee should be a formally organized committee appointed by proper authority or authorities for a defined term. The committee is usually made up of leading members of the industrial, business, professional and labor organizations of the community. The committee has no legislative or administrative authority; but its basic policy is to serve in an advisory capacity. In addition, members usually serve voluntarily without pay.

Some specific functions of the specialized advisory committee are:

1. To speak on behalf of employers and employees from specific occupational areas.
2. Serves as a communication channel between the college and community occupational groups.
3. Lists the specific skills and suggests related and technical information for the program and courses required for entry into and promotion within a career area.
4. Advises on the type of competencies (skills, knowledges, and attitudes) needed to prepare students for entering into a specific occupation.
5. Recommend physical facilities and types of equipment needed for a specific occupational program.
6. Make suggestions which will promote and assure the highest quality program.
7. To recommend standards of competency and achievement which are necessary for entry into employment and promotion within an occupational area.
8. Recommends competent personnel with appropriate business and industrial experience as potential instructors.
9. Assist with an evaluation of the program of instruction.
10. Suggests ways for improving the dissemination of program information to potential students and employers.
11. Assists in recruiting, providing internships, and in placing qualified graduates in appropriate jobs.
12. Keeps the school or college informed on changes in the labor market, specific needs, and surpluses, etc.
13. Provides a means for the school or college to inform the community of needed occupational programs.
14. Assesses program needs in terms of the needs of the community.
15. Assists in long-term program planning.

The procedure and steps for the selection, appointment, and utilization of advisory committee members are pointed out in Activity 1.1.8. Members for a specialized occupational advisory committee should include: (1) Persons presently performing in the job to be analyzed, (2) persons having supervisory responsibilities over those actually performing the job, (3) persons having a knowledge of the industry or business to which the job is related, (4) persons knowledgeable about the potential target group for which the program is being developed, (5) persons who will be served by the program.

FOR EXAMPLE: an advisory committee to assist you with the development of a program to train auto mechanics might be organized as follows: 3 auto mechanics (2 skilled and 1 beginner); 2 service managers; 1 auto dealer; 3 regional service representatives from Ford, Chrysler, and General Motors; 1 black community leader; 1 representative of state employment service; and 2 students.

APPENDIX B

OBJECTIVES WRITING PROCEDURES

Before beginning the actual writing of objectives, it is also important to understand that there are different categories of objectives as well as different levels of objectives. These categories or domains of instructional objectives are:

1. Cognitive – those objectives concerned with the intellectual processes of the student.
2. Affective – those objectives dealing with attitudinal, emotional, and valuing behaviors of the student.
3. Psychomotor – those objectives concerned with skill performance of the student.

Within each domain there are various levels of which objectives can be written. However, the domain most widely used to illustrate and compare levels of objectives is the cognitive. The six levels of the cognitive domain are: (1) knowledge; (2) comprehension; (3) application; (4) analysis; (5) synthesis; and (6) evaluation. These levels suggest that objectives calling for recall (knowledge) represent the lowest level of cognitive performance. Conversely, objectives written asking the students to make comparisons and judgments (evaluation) require a higher level of cognitive performance.

Even though this procedure does not deal with categorizing objectives, being aware of these different categories and levels will assist you in recognizing the different ways in which student performance can be prescribed.

A reference helpful in better understanding the three domains and levels of objectives is:

Popham, W.J. and Baker. E.L., Establishing Instructional Goals, Englewood Cliffs, N.J.: Prentice-Hall, Inc. 1970.

ACTIVITY: Develop student performance objectives based on the competency identification and analysis

INTRODUCTION

Having completed the analysis of each competency (Activity 2.2.2) you now have the necessary background information to begin the development of measurable student performance objectives.

The most useful form for student performance objectives is that which describes the performance a student should exhibit upon completion of a course or program. An example of such an objective would be:

> Upon completion of this course, the student will be able to reline brakes on any automobile in accordance with manufacturer's specifications and flat rate standards for that car.

Note that an objective stated in this fashion tells what the student must do (reline brakes), it clarifies the conditions under which he must perform (on any car), and the criteria against which his performance will be measured (manufacturer's specifications and flat rate standards).

Developing student performance objectives will establish for the student what he must be able to do and how well he must do it, as well as serve to direct the preparation of instructional packages (courses or units) and instructional methodology.

Two references to assist you in writing objectives are:

Robert F. Mager, Preparing Instructional Objectives,
Palo Alto, California: Fearon Publishers, 1962.

Robert F. Mager and Kenneth M. Beach, Jr., Developing Vocational Instruction, Palo Alto, California; Fearon Publishers, 1967.

PROCEDURE	RESOURCES
1. Assemble completed "Competency Identification and Analysis Worksheets" (Form 2.2.1.3).	Form 2.2.1.3
2. Using the "Student Performance Objectives Worksheet" Form 2.2.2.1, transfer competencies listed in Column A of the "Competency Identification and Analysis Worksheet" Form 2.2.1.3 to the column labeled "Task or Outcome Statements".	Form 2.2.2.1
3. For each listing in the "Task or Outcome State" column complete the worksheet by listing the conditions that will exist when the performance is to be evidenced and the criteria that will be used to judge the adequacy to which the student has achieved each competency. NOTE: Descriptions of each of these columns which represent the components of a measurable objective are: (a) Outcome Statement – a statement that describes the task activity, knowledge, attitude, or other accomplishment being sought; (b) Conditions – a statement of the instructional circumstances under which the outcome will be observed or measured; (c) Criteria – the standards: levels, or quality of outcome being sought – standards that, when achieved, will identify acceptable attainment of the outcome in the instructional setting.	
4. You can now use the information from each of the three columns to write measurable student performance objectives. Various forms can be used to write such objectives – see the following examples. Example 1 Objective: Given a maladjusted color TV and necessary equipment, the student will be able to adjust the set for a test pattern to meet the manufacturer's specifications. Example 2 Outcome: Make color adjustments on standard color TV set. Condition: The student will have access to necessary test equipment, tools, manufacturer's specifications, and a maladjusted TV set. Criterion: The student must produce a color test pattern to manufacturer's specifications as described in manufacturer's specifications and shown on color poster. NOTE: Form 2.2.2.2 provides a series of questions you can ask yourself in assessing the extent to which the objectives you have written contain information on each of the three components of a measurable objective (task or outcome statement, conditions, and criteria).	

FORM 2.2.2.1

STUDENT PERFORMANCE OBJECTIVES WORKSHEET

PROGRAM ______________________________

TASK OR OUTCOME STATEMENT	CONDITIONS	CRITERIA

QUESTIONS USEFUL IN ANALYZING OR IDENTIFYING EACH COMPONENT OF A MEASURABLE OBJECTIVE:

1. Answer these questions yes and your outcome statements are appropriate.

   A. Does your statement specify what activity, ability, skill, or attitude is to be achieved?

   B. Is your statement a short descriptive sentence containing "action" verbs? (Note: See Appendix A for listing of action verbs useful in writing objectives.)

2. Answer these questions yes and your conditions statements are appropriate. Does the statement indicate (if relevant):

   A. Time limits of performance

   B. Place of performance

   C. With what materials or equipment (tools, clothing, etc.)

   D. Under what special constraints (limitations given, job aids, environmental conditions, etc.)

3. Answer these questions yes and your criteria statements are appropriate.

   A. Is there a statement of how well the outcome (quality) should be achieved?

   B. Does your statement clearly indicate how many aspects (quantity) must be achieved to obtain "minimum required success" level?

   C. Are the following qualifications stated (if relevant)?

      (1) The time allowed to complete activity or performance called for in the outcome statement.

      (2) The number, percentage, proportion of successful attempts required.

      (3) The results that will be considered acceptable.